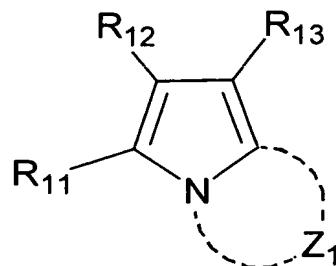


What is claimed is:

1. A thin film transistor comprising at least three terminals consisting of a gate electrode, a source electrode and a drain electrode; an insulating layer and an organic semiconductor layer on a substrate, which controls its electric current flowing between the source and the drain by applying a electric voltage across the gate electrode, wherein the organic semiconductor layer comprises a heterocyclic compound containing a nitrogen atom formed by condensation between five member rings each having a nitrogen atom at their condensation sites or between a five-member ring and a six-member ring each having a nitrogen atom at their condensation sites.
2. The organic thin film transistor according to Claim 1, wherein said heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (I):

(I)



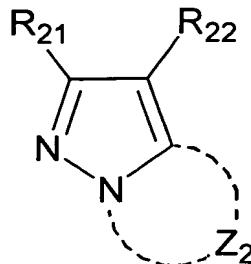
wherein R₁₁, R₁₂ and R₁₃ each independently represents a hydrogen atom or a substituent; and

20 Z₁ represents an atomic group forming a five-member ring or a six-member ring.

3. The organic thin film transistor according to Claim 1, wherein said

heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (II):

(II)

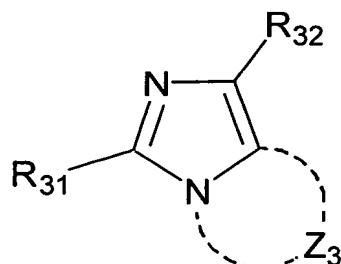


5 wherein R₂₁ and R₂₂ each independently represents a hydrogen atom or a substituent; and

Z₂ represents an atomic group forming a five-member ring or a six-member ring.

4. The organic thin film transistor according to Claim 1, wherein said
10 heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (III):

(III)

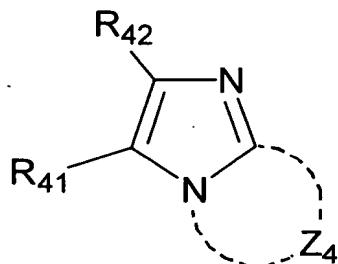


15 wherein R₃₁ and R₃₂ each independently represents a hydrogen atom or a substituent; and

Z₃ represents an atomic group forming a five-member ring or a six-member ring.

5. The organic thin film transistor according to Claim 1, wherein said heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (IV):

(IV)



5

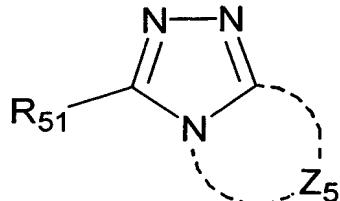
wherein R_{41} and R_{42} each independently represents a hydrogen atom or a substituent; and

Z_4 represents an atomic group forming a 5-member ring or a 6-member ring.

10

6. The organic thin film transistor according to Claim 1, wherein said heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (V):

(V)



15

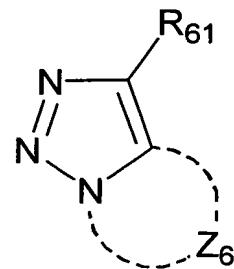
wherein R_{51} represents a hydrogen atom or a substituent; and

Z_5 represents an atomic group forming a five-member ring or a six-member ring.

20 7. The organic thin film transistor according to Claim 1, wherein said

heterocyclic compound containing a nitrogen atom is a compound expressed by a following general formula (VI):

(VI)



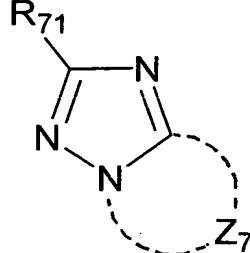
5

wherein R₆₁ represents a hydrogen atom or a substituent; and

Z₆ represents an atomic group forming a five-member ring or a six-member ring.

8. The organic thin film transistor according to Claim 1, wherein said
10 heterocyclic compound containing a nitrogen atom is a compound expressed by a
following general formula (VII):

(VII)



15 wherein R₇₁ represents a hydrogen atom or a substituent; and

Z₇ represents a group forming a five-member ring or a six-member ring.